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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/992,192

11/13/2001

Michael R. Krames

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11/06/2003

PATENT LAW GROUP LLP
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SAN JOSE, CA 95134

EXAMINER

GUERRERO, MARIA F

ART UNIT

PAPER NUMBER

2822

DATE MAILED: 11/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/992,192

Applicant(s)

KRAMES ET AL.

Examiner

Maria Guerrero

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 5-27 is/are pending in the application.
- 4a) Of the above claim(s) 15-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-22 and 25-27 is/are rejected.
- 7) ☒ Claim(s) 23 and 24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 09/162,708.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. This Office Action is responsive to the Request for continued examination and the Amendment filed October 16, 2003.

Claims 3-4 are canceled.

Claims 1-2 and 5-27 are pending.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 16, 2003 has been entered.

Election/Restrictions

3. Claims 15-19 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 9.

Priority

4. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 09/162,708, filed on September 29, 1998.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 5-14, 20-22, and 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujii (EP 0743727 A1) (cited by Applicant) in view of Sun et al.

“Piezoelectric Fields in Strained (In, Ga) As/GaAs Multiple-Quantum well Structures Grown on Vicinal (110) GaAs” (of record) and Mishimura et al. (U.S. 5,081,519).

Fujii teaches a method of fabricating a light-emitting device including an III-Nitride quantum well layer (Abstract). Fujii discloses selecting a facet orientation of the III-Nitride quantum well layer and growing the III-Nitride quantum well layer with the selected facet orientation (col. 3, lines 1-5, 44-50, col. 5, lines 40-55, col. 11, lines 40-55). Fujii teaches selectively growing the III-Nitride quantum well layer with an hexagonal crystal structure (wurtzite or zintlende) of basal plane tilted from a (0001) plane by an angle in the range of 0 degree to a few degrees (col. 6, lines 3-50, col. 11, lines 40-55).

Furthermore, Fujii discloses growing a nucleation layer directly on a substrate surface by metal-organic chemical vapor deposition and growing the quantum well layer above the nucleation layer (col. 13, lines 1-25). Fujii teaches the substrate being SiC or GaN (col. 12, lines 53-55). Fujii discloses growing a first semiconductor layer above the

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substrate, altering an exposed surface of the first semiconductor layer to provide a surface having the selected facet orientation (col. 12, lines 1-47). Fujii teaches

Fujii is silent about selecting the facet orientation to control a field strength of a piezoelectric field therein. Fujii does not specifically show the selected facet orientation being tilted from a (0001) plane by an angle of at least 10° . Fujii does not specifically show the selected facet orientation being tilted from a (111) plane by an angle of at least 1° . However, Sun et al. is cited as evidenced to show that the piezoelectric effect is necessary controlled during the selection of the facet orientation. Sun et al. also shows selecting a facet orientation being tilted from a (111) plane by an angle of at least 6° (pages 466-470). In addition, Nishimura et al. shows the selected facet orientation being tilted from a (0001) plane by an angle of at least 10° or less than 45 degrees (Abstract, col. 2, lines 23-55, col. 3, lines 22-55). Nishimura et al. discloses employing different plane directions (col. 4, lines 13-35).

Therefore, it would have been obvious to a person of ordinary skill in the art to recognize that field strength of a piezoelectric field is necessary controlled during Fujii's growing process as evidenced Sun et al. and to modify Fujii reference by including the angles, orientation, and planes suggested by Nishimura et al. and Sun et al. The modification would provide a light emission device having high quality III-V group compound semiconductor layer with smooth surfaces (Nishimura et al., col. 2, lines 23-26).

Response to Arguments

5. Applicant's arguments with respect to claims 1-2, 5-22, and 25-27 have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

6. Claims 23 and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: In the examiner's opinion, there is not motivation or suggestion to combine the references in order to meet the specific angles as claimed in claims 23-24.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Imai et al. (U.S. 5,602,418), Koga et al. (U.S. 5,7217,008), Marx et al. (U.S. 5,880,485), and Chai et al. (U.S. 5,6625,202) teach the step of growing a II-V nitride light emitting layer as well known in the art.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maria Guerrero whose telephone number is 703-305-0162.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on 703-308-4905. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7724 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Maria Guerrero.

Maria Guerrero
Patent Examiner
October 30, 2003